

**REMARKS**

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claim 37 is requested to be cancelled without prejudice or disclaimer. Claims 24, 37 and 41 are currently being amended. This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier. After amending the claims as set forth above, claims 24-26, 36, 41 and 42 are now pending in this application.

***Claim Objections***

Claims 24-26 and 41 are objected to because of informalities. Claim 24 has been amended to correct the informality by amending “sensor” to read “vibratory accelerometer.” Claim 41 has also been amended to correct the informality by amending “sensor” to read “accelerometer.” These amendments were not made for reasons of distinguishing the claims from the art.

***Claim Rejections Under 35 U.S.C. § 112***

Claim 37 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant respectfully traverses this rejection. In order to expedite issuance of this application, claim 37 has been cancelled without prejudice or disclaimer.

***Claim Rejections Under 35 U.S.C. § 103***

Claims 24-26, 36, 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birgenheier et al. (U.S. 5,187,719) in view of Bonta et al. (U.S. 5,245,347) and further in view of applicant's disclosure on page 12, lines 9-17. Applicant respectfully traverses this rejection.

Birgenheier is directed to measuring modulation accuracy of continuously modulated signals and specifically notes the use of radios for use in communications, such as digital cellular radios and the like, in order to comply with a standard for overall phase error specifications, enabling different radios to communicate with each other. (col. 1, lines 11-55) As noted in the Office Action, Birgenheier does not teach a vibratory sensor for producing an analog signal in response to a measurement parameter. Nor does Birgenheier discuss vibration.

Bonta is directed toward an all weather tactical strike system and method of operation. Bonta uses an airborne, synthetic aperture radar for generating radar maps. In one example, four radars are used as quadrants of a single array antenna. (Abstract) In seeking to maintain high resolution images and operation in hostile environments and during violent movement, Bonta uses vibration sensors mounted on the antenna in order to phase-compensate the received signals to eliminate vibration-induced sidebands. (col. 3, lines 17-26) As discussed in Bonta in further detail beginning at col. 23, line 58:

As is known, any synthetic aperture radar used to map a terrain with high resolution utilizes coherent processing of signals from each individual ground reflector in the terrain being mapped for a dwell (or coherent integration time) of sufficient length to resolve such signals in a set of range gates and Doppler filters. Such processing makes direct use of the motion of an airborne radar during the dwell period to provide different Doppler frequencies for ground reflectors at different angles from the velocity vector of an aircraft. However, significant movement of the range gates and Doppler filters during the dwell induce quadratic and cubic phase components on the terrain and cause degradation of the resolution of the map finally produced. Compensation for such movements includes "slipping" range gates and the Doppler filter bank with sufficient accuracy in a known manner to reduce the unwanted motion during each dwell to acceptable bounds.

A further source of error in radar mapping is phase modulation, induced by random or vibrational motions of the phase center of the radar antenna, during each dwell. With such motions, if the resulting phase modulation is sufficiently large, modulation sidebands of signals associated with each particular ground reflector may overlap with signals from nearby ground reflectors. Compensation for such motions therefore consists of impressing a time-varying phase shift on each signal being processed, such phase shift being determined by a sensor monitoring the phase center motion of the radar antenna along boresight and being opposite in sense to the phase modulation introduced by the unwanted motion of the radar antenna.

Bonta uses five piezoelectric accelerometers to measure aircraft-induced vibrations of the radar antenna. Contrary to the calculations recited in Applicants' independent claims 24, 36, 41 and 42, Bonta uses a differential displacement estimate, integrating, in analog fashion, over the coherent integration time. (col. 35, line 16 to col. 36, line 2)

The Office Action asserts that it would be obvious to incorporate the teaching of Bonta in Birgenheier in order to provide proper signal input source to the analog to digital converter so that proper measurement of the phase and amplitude of a signal can be computed so as to eliminate vibration induced sidebands as taught by Bonta. Applicants disagree with this assertion. Bonta conducts vibration measurement of an airborne radar to improve processing of received radar signals, such as during violent accelerations of the aircraft, in order to generate high resolution terrain maps. The Office Action does not make clear why one of ordinary skill in the art would be motivated to apply these teachings to an application addressing whether communication radios comply with a standard for overall phase error specifications. Therefore, Applicants object to the combination of these references, asserting that the Examiner has not established a proper motivation to combine their teachings, without benefit of reading Applicants' specification.

Furthermore, even if the references were properly combinable, it is not clear from the Office Action, how the differential displacement estimate, integrating, in analog fashion, over the coherent integration time of Bonta would be used with the teachings of Birgenheier to make obvious each of the limitations of the pending claims.

The Birkenhead and Bonta references are independently insufficient to sustain a rejection of the claims. As discussed above, combination of the references is improper. Therefore, Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to

Deposit Account No. 50-3431. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 50-3431. If any additional extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 50-3431.

Respectfully submitted,

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